

## CLAIMS

1. A reference standard for calibration of an analysis instrument, said reference standard comprising a  
5 solid body formed of a number of compounds and a substrate having scattering properties similar to a product to be analyzed with said analysis instrument and being spectrally neutral in a wavelength range to be used in the analysis instrument, wherein the substrate and the  
10 compounds in combination, with respect to intensity, wavelength and scattering properties, imitate the spectral response of the product to be analyzed with said analysis instrument.
- 15 2. The reference standard according to claim 1, wherein a compound imitates the spectral response of a physical property of the product to be analyzed, which physical property is one in the group of moisture, protein content, fat content, oil content, optical density, fiber content, starch content, sugar content and wavelength markers.
- 20 3. The reference standard according to claim 1 or 2, wherein at least one of the compounds is inorganic.
- 25 4. The reference standard according to claim 1, wherein said substrate is a fluorinated substrate.
- 30 5. The reference standard according to claim 1, wherein said substrate is polytetrafluoroethylene (PTFE).
- 35 6. The reference standard according to claim 1 or 2, wherein the compounds in the solid body are homogeneously distributed within the solid body.

7. The reference standard according to claim 1, wherein said substrate is spectrally neutral in the visible and near infrared region.

5 8. The reference standard according to claim 1, wherein the product to be analyzed is one in the group of feed, forage, grain, flour, meal, protein extracts, derived agricultural products, sugar, sweeteners, meat and dairy products.

10 9. The reference standard according to claim 1, wherein the product to be analyzed is a pharmaceutical.

15 10. A method for calibration of an analysis instrument, said method comprising recording, by means of said analysis instrument, the spectral response of a reference standard comprising a solid body, which with respect to intensity, wavelength and scattering properties imitates the spectral response 20 of a product to be analyzed with said analysis instrument,

evaluating the differences between the spectral response from said analysis instrument and an expected spectral response,

25 calibrating said analysis instrument according to the result of the evaluation.

30 11. The method according to claim 10, wherein the expected spectral response is obtained by recording, by means of a reference instrument, the spectral response of said reference standard.

12. Method according to claim 11, wherein the reference instrument is a master instrument.

35 13. Method according to claim 11, wherein the analysis and reference instruments are spectrometers.

14. The method according to claim 10, wherein  
recording comprises irradiating said reference standard  
with electromagnetic radiation and spectrally detecting  
5 the electromagnetic radiation which has been transmitted  
through or reflected from said reference standard.

15. The method according to claim 10, wherein the  
method further comprises transforming the spectral  
10 response from the analysis instrument and the expected  
spectral response into factor space based on the  
properties of the product to be analyzed on the analysis  
instrument.

15 16. The method according to claim 10, wherein the  
evaluating comprises directly comparing the spectral  
response from said analysis instrument with the expected  
spectral response.

20 17. The method according to claim 10, wherein the  
evaluating comprises mathematical prediction of a set of  
parameters from an equation predicting composition.

25 18. The method according to claim 15, wherein the  
evaluating comprises comparing the spectral response from  
said analysis instrument with the expected spectral  
response in factor space.

30 19. Method according to claim 10, wherein recording  
comprises irradiating the reference standard with  
electromagnetic radiation and scanning said radiation  
over wavelengths within the range of visible and near  
infrared light.

35 20. Method according to claim 10, wherein recording  
the spectral response of a reference standard comprises  
recording the spectral response of a reference standard

that comprises a solid body formed of a number of compounds and a substrate having scattering properties similar to a product to be analyzed with said analysis instrument and being spectrally neutral in a wavelength 5 range to be used in said analysis instrument, wherein the substrate and the compounds in combination with respect to intensity, wavelength and scattering properties imitate the spectral response of a product to be analyzed with said analysis instrument.